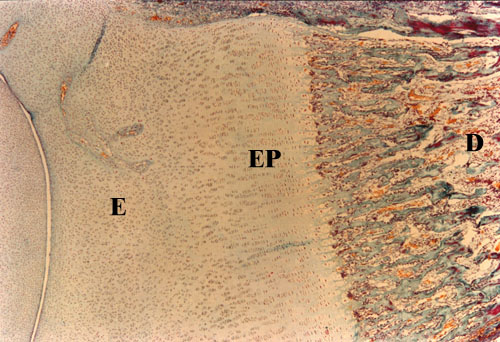
**BONE DEVELOPMENT LABORATORY DEMONSTRATIONS**

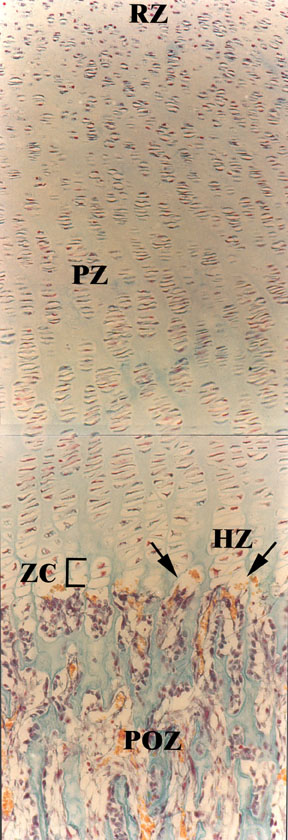
# EPIPHYSEAL PLATE - LM

The epiphyseal plate (**EP**), which contains four zones of hyaline cartilage between the epiphysis (**E**) and the diaphysis (**D**) of a long bone, is the mechanism by which long bones are lengthened. 50X



# EPIPHYSEAL PLATE - HIGH POWER

The resting zone (**RZ**) appears as normal hyaline cartilage with a random scattering of chondrocytes. The proliferating zone (**PZ**) is characterized by columns of thin flattened cells. This is where mitosis and interstitial growth occurs. The zone of hypertrophy (**HZ**) is identified by its columns of greatly enlarged chondrocytes. The zone of calcification (**ZC**) is difficult to visualize because the calcium has been removed during tissue processing and takes a special stain to visualize. The end of the epiphyseal plate is located at the tip of the invading blood vessels (**BV**) or resorption front. The primary ossificaition zone (**POZ**) is characterized by osteoblasts laying down bone matrix on the remanents of calcified cartilage. 200X

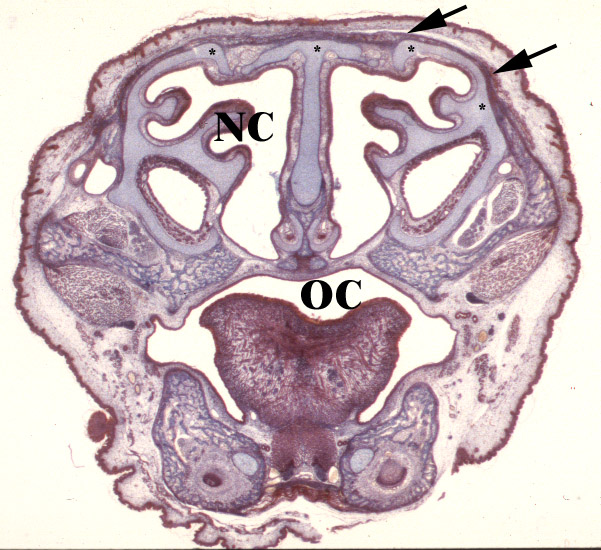


# FETAL SKULL

These micrographs are to orient you to the fetal rodent skull and demonstrate where to look for the process of intramembranous ossification.

Sections of the skull in your slide box can be taken either from the region of the nasal cavity (A) or from farther caudal in the region of the cranial vault containing the brain (B).

A. The nasal cavity (**NC**) in rodents normally is surrounded by blue staining hyaline cartilage (**\***) which is underneath the layer (**arrows**) where intramembranous ossification is occuring. NOTE that *the cartilage is separate from the fibrous layer and not involved in the intramembranous ossification process*. The oral cavity (**OC**) contains the tongue.



B. In this section the brain (**B**) is enclosed by the flat bones forming the cranial vault. The process of intramembranous bone formation is more advanced so bone has already formed throughout the layer indicated by the arrows.

